REMARKS/ARGUMENTS

New Claim 14 finds support in Original Claim 6 and in the specification as originally filed. See, e.g., specification pages 15-17 and the Examples. New Claim 15 is supported at specification page 16, lines 10-14. New claim 16 is supported by Claim 15 and by original Claim 10. No new matter has been entered.

The references applied against the claims do not disclose a process as set forth in Claim 14 where a purified resist polymer solution having 1 mass% or less of certain impurities is produced by dissolving a solid product comprising a resist polymer having a repeating unit decomposable by, and becoming alkali-soluble by, the action of an acid and a polar group-containing repeating unit, in a solvent having a boiling point at atmospheric pressure not higher than the boiling point of a solvent for coating-film formation, and evaporating from the solution the solvent having a boiling point at atmospheric pressure not higher than the boiling point of the solvent for coating-film formation while adding, under reduced pressure with the temperature being controlled at 70°C or less, a solvent for coating-film formation to produce a purified resist polymer solution. As shown in Tables 1 and 2 herein:

TABLE 1

		Example			Comparative Example		
		1	2	3	1	2	3
Composition of charged materials (mol %)	NLM	—	37	—	—	37	—
	NLA	50	—	—	50	—	—
	EAM	50	—	18	50	—	18
	ECpM	—	34	—	—	34	—
	HAM	—	29	—	—	29	—
	PHS	—	—	82	—	—	82
Impurity-removing method		Present invention	Present invention	Present invention	Vacuum drying	Vacuum drying	Vacuum drying
Maximum vacuum (kPa)		0.6	0.7	0.7	0.7	0.7	0.7
Highest temperature (° C.)		49	50	54	75	75	75
Time period of process (hr)		6	6	6	72	72	72

TABLE 2

		Example			Comparative Example		
		1	2	3	1	2	3
Composition determined by NMR analysis (mol %)	NLM	—	40	—	—	40	—
	NLA	50	—	—	50	—	—
	EAM	50	—	20	50	—	20
	ECpM	—	30	—	—	30	—
	HAM	—	30	—	—	30	—
	PHS	—	—	80	—	—	80
	MA + AA	0.0	0.0	0.0	0.3	0.5	0.4
GPC analysis	Mw	8,400	11,600	13,100	8,500	11,500	13,000
	Mw/Mn	2.04	1.82	1.85	2.05	1.83	1.86
Low-boiling-point impurities (mass %)	Organic materials	0.3	0.3	0.2	3.7	7.5	6.3
	Water	0.1	0.1	0.1	0.5	0.2	0.7

the presently claimed method is capable of producing resist polymer solutions having dramatically improved properties with regard to impurity amounts, while using lower temperatures and less time than conventional methods. Although not bound by theory, it is believed that the presently claimed process avoids the decomposition of acid-decomposable repeating units that occurs in the prior art and thereby provides very low levels of impurities in the final product, using a process that is substantially more efficient.

For example, Jung uses precipitation and then vacuum drying (see, e.g., Preparation Example 8 at col. 10 of the reference), in a fashion similar to the comparative Examples described in Tables 1 and 2 above. Kawabe also uses vacuum drying (see, e.g., the synthesis of Resin R-1 at paragraph [0192], while Tazaki appears to simply wash the products (see, e.g., col. 12, lines 32-38 and the paragraph bridging cols. 14-15).

Because the references applied against the claims do not disclose or suggest a method as presently claimed, the outstanding rejections should be withdrawn and this case passed to Issue.

Respectfully submitted,

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